

REMARKS/ARGUMENTS

This Amendment is in response to the Office Action mailed September 10, 2007. Claims 3-9, 12, 13, and 18-23 were pending and examined. Claims 3, 12, 18, and 21-23 have been amended, and claims 8, 13, and 19 have been canceled without prejudice. Accordingly, claims 3-7, 9, 12, 18, and 20-23 will remain pending in the present application after entry of this Amendment. Reconsideration of the rejected claims is respectfully requested.

Allowable Subject Matter

Claims 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Applicants appreciate the Examiner's indication of allowability. Claims 21-23 have been rewritten in independent form to include all of the limitations of base claim 18 and intervening claim 20. As such, Applicants respectfully submit that amended claims 21-23 are in condition for allowance.

35 U.S.C. §102(e) Rejection of Claims 3, 4, 12, 13, and 18-20

Claims 3, 4, 12, 13, and 18-20 are rejected under 35 U.S.C. § 102(e) as being anticipated by Fukumoto (U.S. Publication No. 2003/0086346, hereinafter "Fukumoto"). Applicants respectfully submit that Fukumoto does not disclose each and every feature of these claims.

Independent claim 3 is directed to a method for controlling a writing waveform that is used to write information to an optical disk in an optical disk apparatus. According to one set of embodiments, a writing waveform parameter for one or more write speeds between a highest write speed and a lowest write speed is determined. This determination is based on a first writing waveform parameter that is optimum for the highest write speed, a second writing waveform parameter that is optimum for the lowest write speed, and a third writing waveform parameter that is optimum for a middle write speed between the highest and lowest write speeds.

Thus, the method of claim 3 relies on three distinct waveform parameters to determine an optimum waveform parameter for an intermediate write speed. In some embodiments, the third writing waveform parameter is written on the optical disk beforehand.

In accordance with the above, independent claim 3 (as amended) recites, in part:

based on information on at least a first writing waveform parameter and a second writing waveform parameter optimum for a highest write speed and a lowest write speed, respectively, and a third writing waveform parameter optimum for a middle speed therebetween, deriving a writing waveform parameter for each speed between said highest speed and said lowest speed, . . .

wherein said third writing waveform parameter (for said middle write speed between said highest and lowest write speeds) is a recommended parameter for said middle write speed written on said optical disk beforehand.

(Applicants' claim 3, as amended, emphasis added).

At least the above features are not disclose by Fukumoto.

Fukumoto is directed to a technique for determining an optimum recording power for high speed recording at an outer part of an optical disk. (Fukumoto: Abstract). As shown in FIG. 2 of Fukumoto, an Optimum Power Control (OPC) command for a required recording speed vx is received (step S10). If an OPC operation (*i.e.*, test write) cannot be performed at speed vx, an OPC operation is performed at a first speed v1 to determine a first optimum recording power P1 (steps S28, S30). Further, an OPC operation is performed at a second speed v2 to determine a second optimum recording power P2 (step S32, S34). An optimum recording power Px for speed vx is then calculated based on the first optimum recording power P1 and the second optimum recording power P2 (step S36).

Applicants submit that the invention of Fukumoto is substantially different from the embodiments of Applicants' claim 3. For example, Fukumoto does not disclose deriving a waveform parameter for each speed between a highest speed and a lowest speed based on "a first writing waveform parameter and a second writing waveform parameter optimum for a highest write speed and a lowest write speed, respectively, and a third writing waveform parameter optimum for a middle speed therebetween" as recited in claim 3. (Emphasis added).

As discussed above, Fukumoto describes a method for determining an optimum recording power P_x for a speed v_x based on a first optimum recording power P_1 for a first speed v_1 and a second optimum recording power P_2 for a second speed v_2 . Thus, at best, Fukumoto disclose determining a recording power (P_x) based on two recording powers (P_1 and P_2). In contrast, claim 3 of the present invention specifically recites deriving a writing waveform parameter based on three distinct writing waveform parameters: a first waveform parameter optimum for a highest write speed, a second waveform parameter optimum for a lowest write speed, and a third waveform parameter optimum for a middle write speed. Since Fukumoto merely discloses determining a recording power based on two recording powers, rather than deriving a writing waveform parameter based on three writing waveform parameters as recited in claim 3, Applicants respectfully submit that at least this feature is not anticipated or rendered obvious by Fukumoto.

In the Office Action, the Examiner asserts that Fukumoto discloses deriving a writing waveform parameter based on first, second, and third writing waveform parameters at paragraph 45 and FIG. 3. Applicants respectfully disagree.

The cited section of Fukumoto states:

For example, the case where the optical disk device has 16 times maximum recording speed capability at the PCA of the most inner area, and in the case of the ZCLV recording in which a recording speed at an inner part of a data area is 8 times speed (8x speed), a recording speed at a middle part of the data area is 16 times speed, and an outer part of the data area is 24 times speed, steps S14 and S18 are repeatedly carried out for each of 8 times speed and 16 times speed, which are required recording speeds v_x . As for 24 times speed which is the required recording speed v_x , the recording speed v_1 at step S28 may be 8 times speed (or 4 times speed), and the recording speed v_2 at step S32 may be 16 times speed (or 10 times speed).

(Fukumoto: para. 45).

As best understood, this section merely describes how FIG. 2 of Fukumoto may be applied to an optical disk device that supports 16x recording speed at the PCA (Power Calibration Area) of an optical disk, 8x recording speed at an inner area of the disk, 16x recording speed at a middle area of the disk, and 24x recording speed at an outer area of the disk. Since the supported recording speeds at the inner and middle areas of the disk (8x and 16x) are

slower than (or equal to) the supported recording speed at the PCA (16x), the optimum recording powers for writing the inner and middle areas can be determined directly by performing OPC writes to the PCA (steps S14, S18 of FIG. 2). However, since the supported recording speed at the outer area of the disk (24x) is faster than the supported recording speed at the PCA (16x), the optimum recording power for writing the outer area must be computed based on the recording powers of two alternative speeds v1 and v2 (as shown in steps S26-S36). Thus, this section simply affirms that only two recording powers (for speeds v1 and v2) are used to calculate an optimum recording power for a required recording speed vx.

In addition, FIG. 3 of Fukumoto is merely a graph illustrating the relative magnitudes of optimum recording powers Px, P1, and P2 (corresponding to speeds vx, v1, and v2 respectively). As discussed above, Px is determined based on P1 and P2. Contrary to the Examiner's assertions, FIG. 3 of Fukumoto does not disclose or even suggest that an additional third recording power (other than P1 and P2) is used to determine optimum recording power Px. For at least these reasons, Fukumoto fails to disclose deriving a waveform parameter based on "a first writing waveform parameter and a second writing waveform parameter optimum for a highest write speed and a lowest write speed, respectively, and a third writing waveform parameter optimum for a middle speed therebetween" as recited in claim 3. (Emphasis added).

Further, since Fukumoto fails to teach anything about deriving a waveform parameter based on three distinct waveform parameters, Fukumoto necessarily fails to disclose "wherein said third writing waveform parameter (for said middle write speed between said highest and lowest write speeds) is a recommended parameter for said middle write speed written on said optical disk beforehand" as recited in claim 3.

For at least the foregoing reasons, Applicants submit that Fukumoto does not anticipate or render obvious Applicants' claim 3. Applicants therefore respectfully request that the rejection of claim 3 be withdrawn.

Independent claims 12 and 18 recite features that are substantially similar to claim 3, and are thus believed to be allowable over Fukumoto for at least a similar rationale as discussed for claim 3, and others.

Claims 4 and 20 depend from independent claims 3 and 18 respectively, and are thus believed to be allowable over Fukumoto for at least a similar rationale as discussed for claims 3 and 18, and others.

Claims 13 and 19 have been canceled without prejudice. Accordingly, the rejection of these claims is moot.

35 U.S.C. §103(a) Rejection of Claims 5-8

Claims 5-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fukumoto and in view of Sato (U.S. Patent No. 6,563,775, hereinafter "Sato"). Applicants respectfully submit that Fukumoto and Sato, considered individually or in combination, do not teach or suggest the features of these claims.

Claim 8 has been canceled without prejudice. Accordingly, the rejection of this claim is moot.

Claims 5-7 depend from independent claim 3, which is not rendered obvious by Fukumoto as discussed above. As best understood, Sato does not provide any teaching that would remedy the deficiencies of Fukumoto in this regard. For at least this reason, even if Fukumoto and Sato were combined (although there appears to be no rationale for combining), the resultant combination would not teach or suggest all of the features of claims 5-7, which depend from claim 3. Applicants therefore respectfully request that the rejection of claims 5-7 be withdrawn.

35 U.S.C. §103(a) Rejection of Claim 9

Claim 9 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fukumoto and in view of Official Notice. Applicants respectfully submit that Fukumoto, either individually or in combination with the Official Notice, does not teach or suggest the features of this claim.

Claim 9 recites features that are substantially similar to amended claim 3. For example, claim 9 recites in part "controlling a writing waveform on an optical disk. . . said method using a writing waveform parameter for 5X as a first parameter, a writing waveform for

2X as a second parameter; and a . . . writing waveform for 3X. . . as a third parameter.” (Emphasis added). In addition, claim 9 recites that the third waveform parameter is written on the optical disk. As discussed with respect to claim 3, these features (among others) are not disclosed or suggested by Fukumoto.

The deficiencies of Fukumoto in this regard are not remedied by the Official Notice asserted in the Office Action. The Office Action merely takes Official Notice that “it would have been obvious. . . to use 2X, 3X, and 5X as given write speeds. . . [and] it was well known in the art. . . to use DVD-RAM in conjunction with CAV.” (Office Action: pg. 6). Accordingly, the combination of Fukumoto and the Official Notice still fails to render obvious the features of claim 9 recited above.

For at least the foregoing reasons, Applicants respectfully submit that claim 9 is allowable over the cited prior art and request that the rejection of claim 9 be withdrawn.

Amendments to the Claims

Unless otherwise specified, amendments to the claims are made for purposes of clarity, and are not intended to alter the scope of the claims or limit any equivalents thereof. The amendments are supported by the Specification and do not add new matter.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

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Reply to Office Action of September 10, 2007

PATENT

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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